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Considerations and Management of the Pregnant Adolescent Presenting with an Abscessed Molar

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Abstract

The pregnant adolescent poses a unique set of management considerations for the dentist. Dental care must not adversely affect the developing fetus, and the dentist must navigate the behavioural and physical stages of the adolescent. Hormonal and lifestyle changes during adolescence and pregnancy places these patients at increased risk for the development of dentoalveolar abscesses. It is thus necessary for the dentist to have an understanding of the management considerations of dentoalveolar abscesses in these patients. This paper aims to discuss management of the pregnant adolescent presenting with an abscessed molar. Considerations that will be discussed include: informed consent, adolescent behaviour, patient history, dental chair positioning, clinical examination and diagnosis, use of dental radiographs, drugs and pregnancy, use of nitrous oxide, treatment of the differential diagnoses, prevention and anticipatory guidance.

MeSH Keywords

Adolescent, Pregnancy, Pregnancy in Adolescence, Periapical Abscess, Periodontal Abscess

Introduction

A pregnant adolescent patient poses a unique set of management considerations for the dentist. Not only must dental care be rendered to the mother without adversely affecting the developing fetus, but the dental practitioner must also navigate the behavioural and physical developmental stages of the adolescent. Adolescent pregnancy remains a significant social and health issue in Australia, whereby the age of the mother is between 15-19 years of age in 4% of total births in 2009.[1] Hormonal changes and changes in feeding habits are also associated with changes in the oral cavity[2] that may predispose to dental abscesses. Thus, it is necessary for the dental practitioner to have an understanding of the considerations and management of the abscessed molar in pregnant adolescents.

Informed Consent

In Australia, the Commonwealth Family Law Act 19753 states that the parents or legal guardian have full parental responsibility for any of their children aged under 18 years, and are usually the appropriate persons to give consent for the medical treatment of a minor. However, Australian law recognises that children become increasingly competent as they move toward adulthood, and medical consent can be given by the child depending on their circumstance.

Some states have legislation addressing a minor's consent to medical treatment. In New South Wales, the Minors (Property and Contracts) Act 1970 – Sect 494 allows a child aged 14 years or over to consent to their medical or dental treatment. In South Australia, the Medical Treatment and Palliative Care Act 1995,[5] states an individual of 16 years or over "may make decisions about his or her own medical treatment as validly and effectively as an adult" (Division 1), under certain conditions (Division 4).

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THIS ISSUE

Federal President's Report

John M Sheahan

When I was phoned in late 1990 and asked if I would take on the position of Secretary/Treasurer of the Victorian Branch of the Australian and New Zealand Society of Paediatric Dentistry in 1991, I never dreamed that one day I would be writing a Federal President's Report for Synopses. At that time, there were only four paediatric dentists registered in Victoria, and fewer in other jurisdictions. The Victorian Branch members were almost all general dentists, and many of them, like me, worked in the public sector for the Victorian School Dental Service. There was no Associate Membership of the Victorian Branch for Dental Auxiliaries. Professor John Jago was Branch President. With him living in Sale, more than 2 hours away by car from Melbourne, I was left very much to my own devices to organise the year's dinner meetings and Christmas party. At that time, I had access to the computer at my father-in-law's office, and my wife, Gabe, did much of the formatting of documents for the Branch on it using WordPerfect, a DOS-based program, as I did not type and I had no idea about DOS. (I still don't have any idea about DOS!) Microsoft Windows and email were outside my ken. I do remember convening one formal Branch Committee meeting during that year because I had to organise a one or two day continuing education program to coincide with the visit to Melbourne of Professor Art Nowak from Iowa and Professor Mark Hertzberg from Minnesota. For the remainder of the year, John Jago and I would hold informal planning meetings on the night of each dinner meeting, usually after the dinner meeting had concluded before he left to return to Sale. Otherwise, we used the fixed telephone or fax machine to communicate. At the beginning of the year, I had no idea about how to run a dinner meeting and I will always be indebted to John Jago for mentoring me during that year. I am also indebted to Dr (now Clinical Associate Professor) John Brownbill, whose guidance and verbal positive reinforcement of my efforts during the year encouraged me to stay involved in the Branch's administration. Most of all, I am indebted to Gabe for encouraging me to take up the position of Branch Secretary/Treasurer in 1991, for supporting me with her clerical skills during that year, and for her ongoing support for my work for the Society, and for her ongoing support of my efforts to advocate for the children of Australia and New Zealand. Oh my goodness, how times have changed since 1991! By the time I was appointed Senior Registrar in Paediatric Dentistry at Westmead Hospital in 1995, I had learned to type, knew how to use email, Microsoft Word and a range of other software packages, and I was no longer totally reliant on Gabe for clerical support!

My time on the Society's New South Wales and Victorian Branch Committees, the Victorian Branch Executive and as the Victorian Representative on the Society's Federal Council has been a wonderfully rewarding experience, full of camaraderie and good humour. I strongly encourage Branch Members to consider becoming Committee Members of their respective Branches so that they too can enjoy and benefit from the experience that such involvement brings.

I am truly humbled by my election to the position of Federal President of ANZSPD Inc. After my investiture as President during the Annual General Meeting at the recent Biennial Conference in Canberra, I took the time to read the names of the former Federal Presidents of the Australian Society of Dentistry for Children and of ANZSPD Inc which appear on the badges attached to the ribbon supporting ANZSPD Inc's Presidential Jewel, the President's chain of office. It reads like a who's who of paediatric dentistry in Australasia. I do not believe that I belong in such esteemed company, but I will endeavour to follow in the very large footsteps of the former Presidents to the best of my ability. I know that I have the full support of the Society's membership, the Victorian Branch Committee and the Federal Council, including the Immediate Past President, Dr Kareen Mekertichian, in my endeavours.

On behalf of the Society, I would like to thank Kareen for the great leadership he has shown during his term as President of ANZSPD Inc. Kareen was elected as President at the Biennial Conference in Queenstown, New Zealand in March, 2010. Kareen is one of the great communicators within our Society. His ability to be welcoming and to put people at ease quickly is second to none. This, combined with his fluency when lecturing and his clinical skill and experience, has made Kareen one of the Society's shining lights. During his time as President, Kareen successfully negotiated a formal contract with our wonderful commercial partner, Colgate. This was done at a time when the corporate world was hesitant to make ongoing financial commitments to professional bodies such as ours due to the very unstable nature of the world economy. This contract, signed in early 2011, has formalised the fruitful and long-standing informal partnership that has existed between ANZSPD Inc and Colgate. It has secured the ability of ANZSPD Inc to provide ongoing world-class continuing education to our membership during the initial five year period of the contract. It has also secured international exposure for our most highly decorated post-graduate student research projects through the "Colgate ANZSPD Research Award". The contract also provides for further sponsorship beyond the initial five year period should both parties be happy to continue the arrangement. I have no doubt that the existing strong relationship with our friends at Colgate, initially forged by past Federal Councillors and Presidents, and so ably formalised under Kareen's leadership, will continue far beyond the initial five year period of the contract. If I can show half the leadership and wisdom that Kareen has shown during his term as President, I will have done a good job as President.

The great strength of ANZSPD Inc is the diversity and complementarity of the

skills and aptitudes of its members. Some of our members are great clinicians, some are great researchers and others are great teachers. Some communicate well with professional colleagues but do not communicate so well with their patients, and vice versa. Some members focus on the big picture and overlook the devil in the detail. Others are able to see the devil in the detail but overlook the big picture. Each member has some special skill at which he or she excels, and some weakness upon which to improve. No member is perfect. In this, I am no different from any other member. What makes ANZSPD Inc a strong organisation is its ability to find each member's strength and its ability to utilise that strength to further the aims of the organisation. It is the cohesion that comes from the fellowship experienced at our meetings, and the good humour and grace that is so much a part of our Society, which makes the organisation move forward like a well-oiled machine. Long may this continue!

Dr Alistair Devlin continues to provide much of the good humour and grace which holds our disparate Branches together as a unified Society. His long-standing and ongoing contribution to the Society as Secretary-Manager is welcomed and appreciated by all the past and current Federal Councillors and Presidents who have had the privilege to work with him. Without Alistair at the helm to assist me, I would not have been so willing to accept the nomination for the position of Federal President. Already, I am most grateful to him for the guidance and support he has shown since my investiture.

Dr Tim Johnston also helps to hold our disparate Branches together in his role as Editor of this newsletter, Synopses. The importance of this role is often under-estimated, and the Society is most grateful that Tim has agreed to continue as Editor for the foreseeable future. The most challenging aspect of the role is sourcing sufficient content. To assist Tim in his endeavours to attract suitable content, sub-editors have now been appointed in each Branch. I would like to thank Tim and his new sub-editors and all past contributors for their involvement. I also remind members that this is our own publication and I urge members to contribute to Synopses to sustain its viability. "Synopses" is not a refereed journal, and accordingly, items for publication may be relatively informal.

One of the most important times for learning and fellowship on the Society's calendar is the Biennial Conference, which, as usual, was proudly supported by our Principal Sponsor and friends at Colgate. What a wonderful time the delegates had at the 17th Biennial Conference of ANZSPD Inc, which was held in July in Canberra! My congratulations go to the New South Wales Branch for organising such a wonderful conference. In particular, I would like to congratulate the local organising committee, lead by Associate Professor Richard Widmer, for putting together such a wonderful scientific and social program. Richard was ably assisted by the other members of this committee: Dr Kareen Mekertichian, Dr Rebecca Eggers and Dr Charles Daniels. Every delegate to whom I have spoken has offered enthusiastic praise for the conference. What great speakers from a diversity of professional backgrounds and what great topics were selected by the organising committee! From minimal intervention dentistry to cutting-edge paediatric endodontics, from exodontia to how child and adolescent mental health issues can impact on our provision of world-class dental care to our young patients, the range was huge. For me, the advent of a real-time interactive survey via the delegates' smart phones or tablets with almost instantaneous feedback of the results to the delegates reminded me how far technology has progressed since WordPerfect and DOS-based programs were at the forefront in 1991. This interactive survey was made possible through the hard work and trans-Tasman co-operation of the two presenters of this session, Dr Peter Readman and Dr Erin Mahoney, and the session was sponsored by our friends at 3M Espe. This sort of trans-Tasman co-operation was also evident in the wonderful presentation by Dr Dorothy Boyd and Dr Sally Hibbert, entitled, "Open to Suggestion – Paediatric Self-Hypnosis in Dental Practice". No only was trans-Tasman co-operation evident in these presentations, Australasia's ability to attract and retain high-achieving migrants from distant lands was also in evidence. The presence in our countries of these fine clinicians has enhanced our practice of paediatric dentistry, whether they were trained here in Australasia or elsewhere. Professor Chris Deery from the University of Sheffield proved to be a popular choice to be our keynote speaker and provided us with two stimulating and thought-provoking lectures entitled, "Caries Diagnosis and Management: Towards a New Paradigm". Five contestants from the University of Melbourne competed for the Colgate ANZSPD Research Award. I am pleased to report that the standard of the competition was outstanding and that Dr Pui Ling Chay was a most worthy recipient of the award. The Welcome Reception, which was held at the conference venue and which was also sponsored by Colgate, was a great success and offered delegates and their guests an opportunity to make new friends and renew old friendships in a convivial atmosphere. On the following evening, the Gala Dinner at the National Portrait Gallery allowed another opportunity for delegates and their guests to share each other's company. Prior to dinner being served, those attending were able wander around the Gallery's collection for an exclusive viewing of its major artworks. This evening of fantastic food, wine and entertainment was sponsored by our friends at the GC Australasia Dental. To the New South Wales Branch, the local organising committee, the speakers, the sponsors, the delegates and their guests, I offer my sincere thanks on behalf of the Society for contributing to the success of the meeting. I would also like to thank the staff of the ADA (NSW) Centre for Professional Development who did such a fine job managing the event.

The RK Hall Travelling Lecture Series, which is proudly sponsored by Colgate, is the next major event on ANZSPD Inc's calendar. It will be held in February/March, 2014 and be organized by the Victorian and New Zealand Branches, which will each host a leg of the tour. Planning for this event is already underway. The 18th Biennial Conference of ANZSPD Inc will follow in autumn 2015 and be organised by the South Australian Branch. In the interim, Branches will be holding periodic continuing education meetings which will showcase the best of paediatric dentistry to the local membership.

As many of you would know, the International Association of Paediatric Dentistry (IAPD) has an ANZSPD member, Dr Eduardo Alcaino, as its President. Ed's term in office will come to an end during the next IAPD Congress, which is to be held in Seoul, South Korea. I know many ANZSPD members will be attending the Congress and will want to be present to honour

Ed's achievement when he hands over to the President-Elect at the Closing Ceremony. Pre-congress courses, the Opening Ceremony and the Welcome Reception are all scheduled on 12th June, 2013, with the final day of the Scientific Program and Farewell Dinner scheduled on 15th June, 2013. To be held in the state-of-the-art Coex Convention and Exhibition Centre, the 24th IAPD Congress promises to be an exciting and memorable experience. Seoul is one of the most technically advanced cities in the world, yet it is rich in culture and traditions. Within the Seoul National Capital Area, there are four UNESCO World Heritage sites and numerous opportunities for shopping, so there will be plenty for delegates and accompanying persons to see and do during their visit to Seoul. If you haven't been to an IAPD congress, I encourage you consider joining the many Australian and New Zealand colleagues who will be in attendance, especially as direct non-stop flights to Seoul are available from Auckland, Brisbane, Melbourne and Sydney. More details of the Congress are available on the website: www.iapd2013.org.

ANZSPD not only takes an active role in continuing education, in my opinion, it remains the leading political advocate on behalf of the dental health of the children of Australia and New Zealand. This advocacy takes many different forms. Since I joined Federal Council, I am aware that ANZSPD Inc has made several submissions on behalf of the membership to many different organizations, including the Australian Dental Association (ADA) and the Dental Board of Australia (DBA). More recently, the Executive has successfully encouraged key ANZSPD members to nominate for positions of influence on several important national committees. If these nominations are successful, ANZSPD Inc will have, for perhaps the first time, a representative voice at the table and be able to influence national decisions before they are made.

The challenges and the need for advocacy are increasing. Each and every ANZSPD member has a role to play.

1. Voting in favour of ANZSPD members who are nominated for professional committees is the simplest role every member can play. It usually only requires a tick in a box and a postage stamp to vote.

2. Keep your eyes and ears open for issues affecting paediatric dentistry that need to be addressed and then bring them to the attention of the ANZSPD Executive for action in case we are not already aware of them. Dr John Winters recently advised the Executive that the New South Wales Branch of the ADA (ADA (NSW)) was preparing a written submission to the Senate Committee which is inquiring into and reporting on the Dental Benefits Amendment Bill 2012. This bill relates to the Child Dental Benefits Schedule (CDBS) which was recently announced by the Australian government to commence on 1 January 2014 as an expanded replacement scheme for the Medicare Teen Dental Program. Not only did John bring it to the attention of the ANZSPD Executive, he sent his own personal input to the ADA (NSW) and supplied the ANZSPD Executive with a copy, which later formed the basis of ANZSPD's input to the ADA (NSW). I am most grateful that, through John's initiative, we were able to influence the ADA (NSW)'s submission to the Senate Committee. Moreover, by supplying to the Executive a copy of his personal response to ADA (NSW), the Executive did not need to "reinvent the wheel". We may not be able or want to address every issue that is raised by the membership, but telling us about the issue puts it on the Executive's agenda for consideration. Writing a submission yourself and forwarding it to the ANZSPD Executive for consideration, further increases the likelihood of your concerns being formulated into a formal official ANZSPD submission on the subject.

3. Consider nominating for your ANZSPD Branch Committee. Most Branches are keen to include new committee members.

4. Attend ADA or New Zealand Dental Association (NZDA) group meetings in your neighbourhood or region. Encourage the local Chair/Secretary to include paediatric dentistry as a regular part of the group's continuing education. When paediatric dental issues arise, use these local meetings to let other dentists in your immediate area know how paediatric patients will be affected.

5. Consider taking on a leadership role in your local ADA / NZDA group, and use the opportunity to set the agenda.

6. Consider nominating for membership of a committee which is run by your state branch of the ADA or by your national dental association (for example, the continuing education committee).

In my next Presidential Report for Synopses, I will expand on how ANZSPD has been representing the membership and the dental health interests of the children of Australia and New Zealand during the last few years.

In the meantime, I wish all of you a safe time over the summer break and a happy and prosperous 2013.

John M Sheahan

New Zealand Branch President's Report

Mary Anne Costelleo

We are happy to report as at the end of September that Alison Meldrum is progressing well after a significant car accident. She and her husband Ross are very grateful for all the thoughts and letters of support. I spoke with her several times recently, we all wish her and Ross well in the long road to recovery.

The New Zealand members who attended Canberra were very appreciative of the hospitality and course content offered in June.

The NZ branch is to hold its 6th annual study day in Wellington on Saturday November 17. This year there are four principal speakers addressing Cleft Controversies and Care in New Zealand. Dr Harvey Brown will introduce the Cleft programme with a historical perspective. Heather Keall, Orthodontist will provide an address entitled 'Snakes and Ladders' about current cleft care in New Zealand. Mrs Maeve Morrison, Speech Therapist will speak on Diagnosis of Speech Problems in Cleft and non Cleft velopharangeal incompetence syndromes. Lance West, Maxillofacial Surgeon will speak on the Surgical Correction of Class III secondary Cleft Deformity.

Additional speakers will include Ian Esson on the late effects of childhood cancer treatments to the developing dentition. Ian has announced his imminent retirement from Christchurch Hospital which we all will acknowledge but with regret. Craig Waterhouse will update us on the recent sedation symposium and Colleen Murray will speak on the single anterior Cross bite.

After this, the year will quickly fade and we wish all a safe and happy summer holiday period.

Federal Secretary-Manager's Report

Alistair Devlin

From the Desk of the Secretary-Manager....

The 2012 Annual General Meeting of A.N.Z.S.P.D. Inc. was held in Canberra as the final event in the program of the 17th Biennial Convention of the Society. Earlier in the piece, the Federal Council of the Society had met and in quick time, had navigated through a packed Agenda. Amongst the matters discussed were the following:

- The R.K. Hall Lecture Tour. Following the very successful 2011 Tour when just the one meeting was held (in Uluru in the Northern Territory), it was decided that limiting the number of places visited by the honoured Lecturer had certain advantages. As a consequence, for the next Tour, there would be two centres visited, and tentatively, Melbourne and Wellington were chosen. At this point, this Tour will probably be held in November 2013. The Lecturer for the Tour will be appointed in the next few months.
- The next Convention of the Society, the 18th, as dictated by the Constitution, has to be held between two and three years after the previous one. The sequence for the Conventions following this latest Canberra one conducted by the N.S.W. Branch, is South Australia, Queensland, Victoria, Western Australia and New Zealand. This means the next Convention will be in South Australia and will probably be in the autumn of 2015.
- The Louise Brearley Messer A.N.Z.S.P.D. Annual Post-graduate and Under-graduate Essay Competitions will happen again in 2013. The 2013 post-graduate topic is:
  "A SEVERELY ANXIOUS 10 YEAR OLD PRESENTS FOR HIS FIRST DENTAL EXAM WITH A SORE TOOTH. DISCUSS THE ANXIETY REDUCING TECHNIQUES AND MANAGEMENT OF THIS PATIENT".
  The 2013 undergraduate topic is:
  "DISCUSS THE MANAGEMENT OF THE ECTOPICALLY ERUPTING PERMANENT MOLAR".
  The official notices for these competitions will be sent to Dental Schools around Australia and in New Zealand in the first part of 2013, with a closing date for entries in November 2013. The Federal Council agreed to an increase in the prize money for these competitions, with the first prize in the post-graduate competition now to be AU$2,500 and the first prize in the under-graduate competition increasing to AU$1,500. For the first time, both competitions will now carry a second prize – in both competitions, second prize will be AU$500.
- The awarding of an Australian Honour, a Member of the Order of Australia to Professor Louise Brearley Messer was acknowledged. The A.N.Z.S.P.D. agreed to bestow an honour of its own on Professor Brearley Messer and she was duly granted Honorary membership of A.N.Z.S.P.D.
- The final item dealt with at the Council meeting was the election of office bearers of the Society for the coming two to three years (until the South Australian Convention). Dr John Sheahan was elected President to succeed Dr Kareen Mekertichian. Dr Tim Johnston, in addition to remaining Editor of Synopses, was elected Vice President (in effect President Elect). Dr Alistair Devlin was re-elected Secretary-Manager of the Society. Kareen will remain on the Federal Council as Immediate Past President, a role he will take over from Dr Nina Vasan.

Australian jurisdictions that have not specifically legislated in relation to minor's consent to medical treatment are under the common law (Gillick v West Norfolk and Wisbech Area Health Authority [1986] AC 112, and Secretary, Department of Health and Community Services v JWB and SMB (Marion's Case) (1992) 175 CLR 218).[6, 7] In Marion's Case, the majority of the Court held that: "a minor is capable of giving informed consent when he or she achieves a sufficient understanding and intelligence to enable him or her to understand fully what is proposed".[7] Though an explanation of how to judge that understanding is lacking, guidelines are available in the Western Australia Department of Health 2009 publication Consent to Treatment Policy for the Western Australian Health System (Table 1).[6]

Adolescence and Adolescent Behaviour

Dentists should have a perspective of the ever-changing, complex behaviour of adolescents. The purpose of adolescence is the accomplishment of the four "psychologic developmental tasks" (Table 2).[8] Adolescents must adjust to physiologic, social and familial changes; cope with competitive academic endeavors; and adapt to an array of new situations. This is overwhelmingly more so for the pregnant adolescent dealing with dramatic familial, relational, social and financial changes – all while navigating the challenges of adolescence and parenthood simultaneously. It is thus all the more important for the dentist to understand the social and psychological characteristics of the pregnant adolescent, since their behaviour and situation may influence their priorities, and thus their overall management and oral health.[9]

Strategies for building a rapport with the adolescent patient include: be kind and understanding, discuss their interests, display authority in clinical matters without being authoritarian, use their concerns for health and appearance as mechanisms for motivating behaviour conducive to oral health, and do not cause embarrassment.[9]

History and Discussion with Patient

Patient assessment should include eliciting a thorough medical history, since many physiologic changes occur during pregnancy. Inquiries regarding current physician, history of gestational diabetes, miscarriage, hypertension, morning sickness and stage of pregnancy should be made.[10]

Pregnant patients are at risk of pre-eclampsia and eclampsia. As a result of increased estrogen, progesterone, cortisol and aldosterone synthesis, blood volume expands, cardiac output increases, and tachycardia, heart murmur, increased venous pressure and vasomotor instability may be noted.[11-13] The dentist must consult with the patient's physician prior to initiating dental procedures in women with uncontrolled severe hypertension (sustained elevation above 160/110 mmHg[14]).

Other medical conditions of dental relevance associated with pregnancy include[10]:

- Iron deficiency: exaggerated with significant blood loss
- Neutrophilia: complicates interpretation of complete blood count during infection
- Thrombophilia: most of the small number of women who receive 1-2 heparin injections daily can stop 24 hours prior to dental procedures, in consultation with their physician, to decrease the risk of bleeding complications[15]
- Nausea and vomiting: tooth erosion
- Glucose intolerance and gestational diabetes mellitus
- Increased appetite and craving unusual foods: imbalanced, high-sugar diet

Positioning in the Dental Chair

During late pregnancy, a phenomenon known as "supine hypotensive syndrome" may occur when the patient is in a supine position. This is caused by compression of the inferior vena cava by the gravid uterus, and may lead to an abrupt fall in blood pressure, decreased cardiac output, bradycardia, sweating, nausea, weakness, breathlessness, palpitations, and impairment or loss of consciousness.[10,16] If this occurs, roll the patient over onto her left side. This lifts the uterus off the vena cava, and blood pressure should return rapidly to normal.[10]

Precautions may be taken when positioning a pregnant woman in the dental chair. Incline the women upward or to one side,[16] using a wedge, or treat in a semi-supine position. Do not place the patient in a supine position for prolonged periods, and allow frequent changes of position.

Clinical Examination and Diagnosis

An abscess is a localised collection of pus in a cavity formed by bacteria, inflammatory cells and tissue breakdown products.[17,18] Dentoalveolar abscesses are odontogenic infections, and arise from either the dental pulp (secondary to caries, tooth structure loss due to trauma, or restoration breakdown), the periodontal tissues (mostly due to severe periodontitis), or the pericoronal tissues (mostly due to impacted mandibular third molars).[17,19] Trauma and surgical infections are other recognised causes of dentoalveolar abscesses.[17] Changes in the local environment may cause overgrowth of normal commensals, from which opportunistic dentoalveolar infections arise.[20] The process commences within the vicinity of the tooth, but if ignored or inappropriately treated, it progresses to a localised abscess. Since the host response is to allow drainage of pus via the path of least resistance, it may drain via the periodontal ligament, via the tooth, or spread to the facial or neck soft tissues. It may occasionally become Ludwig's angina, or spread to the brain or mediastinum.[19]

Upon clinical examination, abscess formation is readily identifiable due to pain, redness and swelling of the abscess area, with possible regional lymph node enlargement and muscle spasm (trismus).[17]

Identification of Causative Factors

The main problems associated with dental care for the adolescent are the potentially high caries rate and a lack of motivation for oral hygiene.[21] Other distinctive needs of the adolescent patient are listed in Table 3.

Poor nutritional habits and poor oral hygiene may cause the adolescent patient to develop a large carious lesion with pulpal involvement, which may eventually lead to periapical abscess formation. Additionally, pregnant patients may have unusual food cravings and thus high-sugar diets, which also predisposes to periapical abscess formation.

Oral hygiene often a lower priority for the pregnant adolescent, as they handle medical, financial and social changes associated with their situation. The rise of sex hormones during adolescence and pregnancy have been associated with

changes in the subgingival microflora and an increased risk of gingival and periodontal conditions. These factors may predispose to periodontal infection. Since adolescence correlates with third molar eruption, the patient may be at risk of pericoronal abscesses.

Additionally, patients with (gestational) diabetes mellitus are more prone to abscess formation due to impaired cellular immunity and decreased leukocyte function.[26]

Clinical Tests, Radiographic Examination and Differential Diagnoses

It is imperative to differentiate between periapical and periodontal abscesses in order to determine management (Table 4).

Periapical (Endodontic) Abscess

Periapical abscesses are of pulpal origin, and are either acute or chronic.[27,28] Acute apical abscesses (AAA) may either be primary AAA or secondary AAA.[27] Table 4 outlines clinical and radiographic features of these diagnostic groups. General characteristics of periapical abscesses include[27-29]:

- Offending tooth may have large restoration or carious lesion
- May have no periodontal pocket, or if present, probes as a narrow defect
- Tests show non-vital pulp (only associated with a infected root canal system that is necrotic, pulpless or previously endodontically treated)
- Swelling often localized to apex, with fistulous tract
- Pain often severe and difficult to localise
- Sensitivity to percussion

If a patent sinus tract is present (chronic apical abscess), a gutta percha point placed into the sinus will identify the culprit tooth[27]

Periodontal Abscess

Periodontal abscesses are localised purulent inflammation of the periodontal tissues.[29] The three diagnostic groups are: gingival abscess, periodontal abscess and pericoronal abscess.[29] These may be acute or chronic abscesses. Clinical and radiographic features of these diagnostic groups are outlined in Table 5. In contrast to periapical abscesses, general characteristics of periodontal abscesses include[29,30]:

- Associated with pre-existing periodontal pocket
- Radiographs show periodontal angular bone loss and furcation radiolucency
- Tests show vital pulp
- Swelling usually includes gingival tissue, with occasional fistula
- Pain usually dull and localised
- Sensitivity to percussion may or may not be present

Severe/Advanced Odontogenic Infection

In order to determine whether the patient is presenting with a severe odontogenic infection, the clinician must examine for trismus (spread to masticatory muscles leads to reduction in inter-incisal opening),[18,31] pyrexia (bacterial metabolites entering the blood stream affect the thermoregulatory centre in the hypothalamus),[20] significant regional lymphadenopathy, dysphagia, gross facial swelling, tachycardia, rigors and closure of the eye.[20,31]

Radiographs

Dental radiographs are necessary for the diagnosis and treatment of infection, and there is no reason, on radiation protection grounds, to defer them in the pregnant patient.[32,33] Eighteen intraoral dental radiographs with a D film and lead apron result in an estimated fetal embryonic dose of 0.0000001Gy (cf. 0.0004Gy daily cosmic background radiation).[10,34] The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) guidelines state that during pregnancy there are no contraindications to the taking of intraoral radiographs, however provision of a leaded drape is recommended when the X-ray beam is directed downward towards the patient's trunk.[35] The pregnant patient may require reassurance as to the safety of dental radiographs for her unborn child.

Management and Treatment

Drugs and Pregnancy

The major concern of drug administration during pregnancy is the potential of teratogenic adverse effects since most drugs diffuse across the placenta.[36] The embryo is believed to be resistant to teratogenic drug effects during the first two weeks after fertilisation, prior to commencement of placental formation.[32] Organogenesis (approximately 17 to 70 days after conception) is the critical period with respect to teratogenic effects, and exposure to certain drugs during this period can cause major birth defects.[32] During the first trimester, it is better to avoid elective treatment, and perform urgent care only.[10] Some drugs prescribed during the second and third trimesters can interfere with functional development of organ systems with serious consequences.[32] The benefits of any therapeutic substance must always be considered against possible adverse effects on the developing child.[33] The clinician should also consider the availability and likely success of nonpharmacological interventions, document the education of the patient and her partner regarding risks and benefits, and communicate with professionals involved in her obstetric management.[32] The Australian categorisation of risk of drug use in pregnancy is listed in Table 6.[32,37] The Australian categorisation for common dental drugs is outlined in Therapeutic Guidelines: Oral and Dental 2007.[32]

Nitrous Oxide

Nitrous oxide use during pregnancy is controversial. Chronic exposure to nitrous oxide has been linked to spontaneous abortion and reduced fertility among dental personnel, and as such nitrous oxide levels must be monitored along with use of scavenging equipment.[36,38] However, short-term therapeutic exposure to nitrous oxide has not been proven to cause any adverse effects, and so may be used in pregnant patients.[39] Until more information is available, it is better to avoid nitrous oxide administration to the pregnant patient unless it is deemed necessary.[36]

Management of Dentoalveolar Abscesses

An acute odontogenic infection should be considered as an emergency, with dental management commenced preferably within 24 hours.[19] This is because untreated bacteria that have entered the bloodstream may reproduce and cause fatal consequences arising from septic shock[40] and septicaemia[41] (resulting in a systemic inflammatory response, leukocytosis and potentially fatal end organ damage[18]). Other reported systemic complications arising from spreading dental infections include[17,27]: osteomyelitis, Ludwig's angina, actinomycosis, mediastinitis, cavernous sinus thrombosis, orbital cellulitis, brain abscess, and neurological complications.

The most important treatment steps for

dentoalveolar absesses are: a) mechanical removal of the necrotic infected tissues, and b) to create drainage in order to remove the cause of the infection.[17-19] This is the only treatment required in the majority of cases.[18] Drainage can be achieved either by removal of necrotic pulp, extraction of the tooth, or incision of soft tissues overlying the abscess.[18] The Australian Dental Association recommends[19]:

- Periapical Abscess: Root canal treatment OR extraction
- Periodontal Abscess: Periodontal treatment (scaling, root planing) OR extraction
- Pericoronal Abscess: Local treatment (remove or recontour opposing tooth if impinging on the operculum; irrigate with sterile solution; warm saline or chlorhexidine mouthwashes) OR extraction

Irrigation with antiseptic solutions aims to remove debrided material and kill residual microorganisms.[17] In the case of extractions, peripheral vasodilation and increased cardiac output in pregnancy can predispose to gingival bleeding, thus particular care with haemostasis and forewarning the patient is prudent.[16] Most dental treatment can be carried out with safety during pregnancy.[32,33] Commonly used local anesthetics lignocaine, prilocaine, mepivacaine and bupivacaine are all pregnancy Category A drugs.

Antibiotics are only to be considered if the infection has spread beyond the confines of the jaw to produce facial swelling, if the patient is showing systemic signs and symptoms, or if they are significantly immunocompromised.[18,19] This is due to concern for the development and spread of resistant strains of bacteria.[42,43] Antibiotics are only used as an adjunct to mechanical removal and drainage of the cause of infection.[18,19] Antibiotic treatment is essential for treating septicaemia in order to destroy reproducing bacteria in the blood stream, as indicated by signs of systemic response to infection.[18-20]

Antibiotic regimes for patients with severe superficial infections (swelling and systemic signs and symptoms) are recommended by the Australian Dental Association in conjunction with Therapeutic Guidelines Limited, as described in Table 8, along with the pregnancy category of the drugs.[19] All patients with infection should be reviewed within 48 to 72 hours of commencing treatment, and should be advised to contact the dental clinician promptly if their condition deteriorates.[19] Although culturing is rarely required in managing odontogenic infections, it has been recommended when: 1) the patient is not responding to the first antibiotic after 48 hours of dental treatment, 2) the infection is progressing to other fascial spaces, and 3) the patient is immunocompromised or has a history of bacterial endocarditis and is not responding to the antibiotic therapy.[44] Patients with deep infections (trismus, difficulty breathing or swallowing) require urgent referral to an oral and maxillofacial surgeon or hospital emergency department.[19]

Only if pain persists after dental treatment, appropriate analgesics may be prescribed.[29,45] Though non-steroidal anti-inflammatory drugs (NSAIDs) treat the cause of the pain (reduce inflammation) and provide analgesic effect,[46] NSAIDs are Category C drugs. Hence they are not recommended, and paracetamol with or without codeine and doxylamine should be used instead (Category A).

Prevention and Anticipatory Guidance

Pre-term, Low-birth-weight Infants and Periodontal Health

Within the context of periodontal abscesses, it is worth discussing that an association between periodontal disease during pregnancy and preterm, low-birth-weight (PLBW) infants has generated much interest since 1996 when the relation was proposed.[47] Results from early trials appeared to support the hypothesis that periodontal disease may reduce the risk of PLBW infants, however these were of low methodological quality.[48] However, The Smile Study, a large scale 3-year randomised control trial performed by the Schools of Women's and Infant's Health and Dentistry of The University of Western Australia, and the Women and Infants Research Foundation of Western Australia, has shown no differences in pre-term birth, pre-eclampsia and fetal growth restriction between periodontally-treated and control groups, indicating that treatment of periodontal disease does not affect these key aspects of pregnancy.[49] This finding is in agreement with other recent, high-quality, well-designed randomised control trials, as indicated by a 2010 systematic review and meta-analysis.[48]

Individualised Preventative Plan

A pregnant adolescent presenting with an abscessed molar is likely to have an unhealthy oral environment, and thus an important objective in managing these patients is to establish an optimum level of oral hygiene. A plaque-control program should be introduced to minimise the exaggerated inflammatory response of gingival tissues to local irritants.10 Studies have demonstrated that a reduction of oral streptococcal levels in the pregnant mother reduces the risk of the infant being infected and developing caries, since streptococcus mutans in children is predominately acquired from the mother's saliva.[2,50-52]

As such, an individualised preventative plan should be formulated for the patient. This may include:

- Plaque control: scaling, polishing and curettage.[10] Dental prophylaxis should be ideally performed during the first trimester and early third trimester if oral home care is inadequate, or refer to a periodontist if progressive periodontal disease is present.[24]
- Education and oral hygiene instruction10: counseling should include topics directed to all adolescent patients (eg. third molars, oral piercings, tobacco, substance abuse) and oral changes during pregnancy[2,24]
- Dietary considerations: healthy diet, avoiding frequent exposures to cariogenic foods and beverages[2,24]
- Anticipatory guidance: infant oral health care focusing on needs of the child at each stage of life[2,24]
- Fluoride and Chlorhexidine rinses: several studies have shown the benefits of prenatal fluoride and chlorhexidine on the levels of carious bacteria among offspring.[52-54] However, the American Academic of Pediatric Dentistry and some studies do not support the use of prenatal fluoride supplements to benefit the fetus.[2,55,56]
- Xylitol: this naturally occurring sweetener may be added to a variety of products or chewed as gum. Has potential to reduce caries incidence and reduce mother-child transmission of Streptococcus mutans[24,57]

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Table 1 : Considerations for Judging a Child's Ability to Consent for Medical Treatment[6]

1) Age and maturity of the child
2) Child's ability to understand fully the medical advice being given
3) Nature, consequences and implications of the proposed treatment
4) Potential risks to health
5) Emotional impact of either accepting or rejecting the advised treatment
6) Moral and family questions involved

Table 2 : The Four Psychologic Developmental Tasks of Adolescence[8]

1) Establishment of a realistic, stable, positive adult self-identity
2) Emancipation from parents and other adults
3) Acquisition of skills for future economic independence
4) Psychosexual differentiation to function in an adult role

Table 3 : The Distinctive Nature of Dental Problems in the Adolescent[21,24]

• Potentially high caries rate	• Dental phobia
• Gingival and periodontal problems	• Potential use of tobacco, alcohol and other drugs
• Pulp size	• Pregnancy
• Partially erupted teeth (affects rubber dam placement, impression taking, cavity design, matrix band placement, retainer design)	• Motivation for prevention
• A tendency for poor nutritional habits	• Complexity of combined orthodontic and restorative care (eg. congenitally missing teeth)
• Increased risk for traumatic injury	• Rapid changes in occlusion following removal of teeth
• Increased aesthetic desire and awareness	• Unpredictability of growth spurt (orthodontics)
• Eating disorders	• High cost in cases of long-standing dental neglect
• Unique social and psychological needs	

Table 4 : Features of Periapical Abscesses[27, 28]

Acute Apical Abscess		**Chronic Apical Abscess**
• Rapid onset		• Long-standing lesion
• Intense throbbing and extreme pain to light pressure, touching and percussion		• Asymptomatic, unless closure of sinus pathway
• May have tenderness to palpation and increased tooth mobility		• Abscess draining to a mucosal (sinus tract) or skin surface
• Severe infections: moderate to severe discomfort ± swelling (if not confined to bone)		• No response to pulp sensibility testing
• Swelling is fluctuant, tender to pressure, percussion and palpation		• Radiographically, periapical radioluscent area present with evidence of causative factors (eg. caries)
• Elicit no response to pulp sensibility testing		• If patent sinus, gutta percha point placed into sinus will identify culprit tooth
Primary AAA	**Secondary AAA**	
• Sequel to acute apical periodontitis	• Sequel to secondary acute apical periodontitis (acute exacerbation of chronic apical periodontitis)	
• No radiographic changes, or slight thickening of periodontal ligament space	• Periapical radioluscent area present	

Table 5 : Features of Periodontal Abscesses[29,58]

Acute	**Chronic**
• Pain	• No of few symptoms (possibly dull pain)
• Red, edematous, smooth, ovoid swelling	• Abscess formed after infection has been controlled by spontaneous drainage, host response, or therapy
• Exudate may be expressed with gentle pressure	• Periodontal pocket present
• Tooth may be tender to percussion	• Inflammation present
• Tooth may feel elevated in the socket	• Fistulous tract present

Gingival Abscess	**Periodontal Abscess**	**Pericoronal Abscess**
• Involve marginal gingiva and interdental tissues	• Contiguous to periodontal pocket	• Associated with crown of partially erupted tooth (usually third molars)
• Acute inflammatory lesions	• Often arise as acute exacerbation of a pre-exisiting pocket; commonly in patients with untreated periodontitis and deep periodontal pockets	• Inflammation of soft tissue operculum
• Red, smooth; sometimes painful; often with fluctuant swelling	• Primarily associated with incomplete calculus removal	• Red, swollen, suppurating lesions
• Arise from microbial plaque infection, trauma and foreign body impaction	• Also associated with systemic antibiotic therapy, recurrent disease, tooth perforation or fracture, after periodontal surgery, foreign body impaction, and poorly controlled diabetes mellitus	• Exquisitely tender
	• May result in destruction of periodontal ligament and alveolar bone	

Table 6 : Categorisation of drugs in pregnancy[32,37]

Category A	Drugs which have been taken by a large number of pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed.
Category B1	Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals have not shown evidence of an increased occurrence of fetal damage. Note: Human data is lacking or inadequate and subcategorisation is therefore based on available animal data. The allocation of a B category does not imply greater safety than the C category.
Category B2	Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage. Note: Human data is lacking or inadequate and subcategorisation is therefore based on available animal data. The allocation of a B category does not imply greater safety than the C category.
Category B3	Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals have shown evidence of an increased occurrence of fetal damage, the significance of which is considered uncertain in humans. Note: Human data is lacking or inadequate and subcategorisation is therefore based on available animal data. The allocation of a B category does not imply greater safety than the C category.
Category C	Drugs which, owing to their pharmacological effects, have caused or may be suspected of causing harmful effects on the human fetus or neonate without causing malformations. These effects may be reversible. Note: Category C in the Australian and Swedish categorisations of risk is a pharmacological effect category and differs from that in the US categorisation (where Category C indicates greater likelihood of risk than in B on the basis of adverse effects of any type in animal studies).
Category D	Drugs which have caused, are suspected to have caused or may be expected to cause an increased incidence of human fetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Note: Drugs in Category D are not absolutely contraindicated in pregnancy. Moreover, in some cases the D category has been assigned on the basis of suspicion.
Category X	Drugs which have such a high risk of causing permanent damage to the fetus that they should not be used in pregnancy or when there is a possibility of pregnancy.

Table 7 : Treatment options for localised odontogenic infections[19]

Periapical Abscess	**Periodontal Abscess**	**Pericoronal Abscess**
• Root canal treatment	• Periodontal treatment (scaling, root planing)	• Local treatment – Remove or recontour the opposing tooth if it is impinging on the operculum – Irrigate with sterile solution – Warm saline or chlorhexidine mouthwashes
• Extraction	• Extraction	• Extraction

Table 8 : Antibiotic Regimes for Superficial Odontogenic Infections and related Pregnancy Classifications[19]

Severe Superficial Infections	**Unresponsive Infections**
1) Phenoxymethylpenicillin (Categ A): 500mg orally, 6-hourly for 5 days	1) Metronidazole (Categ B2): 400mg orally, 12-hourly for 5 days PLUS i) Phenoxymethylpenicillin (Categ A): 500mg orally, 6-hourly for 5 days OR ii) Amoxicillin (Categ A): 500mg orally, 8-hourly for 5 days
OR	OR
2) Amoxycillin (Categ A): 500mg orally, 8-hourly for 5 days	2) Amoxycillin + clavulanate (Categ B1): 875 + 125mg orally, 12-hourly for 5 days
OR	OR (for patients hypersensitive to penicillins)
3) Clindamycin (Categ A): 300mg orally, 8-hourly for 5 days	3) Clindamycin (Categ A): 300mg orally, 8-hourly for 5 days

Mt Taranaki, New Plymouth. New Zealand

Imagine a volcano – a perfect volcano

Just do it, O.K. – and don't read on until you have!

Dorothy Boyd

I wonder what your image is like? Mine is a majestic mountain shaped like a wide inverted cone, with the top shaved off. There are trees, and bush covering the lower two thirds, and the upper section is rocky. There is a dusting of snow right on top, and (gladly) no whiff of smoke emanating from the crater. In the background the sky is cloudless blue. We are travelling in a car and the air is warm, with the smell of summer as soothing as the gentle rocking of the car in motion - it is comforting sometimes to be driven rather than to drive. The volcano is long extinct and it's called Mount Taranaki. As Sally and I are taxied from New Plymouth airport, our driver, Lois, tells us that Mount Taranaki is a shy lady, often hiding in a veil of cloud and mist. When she appears, though, onlookers are graced with good times, and good fortune. Hmmm – is that hypnosis? The course hasn't even begun!

Mount Taranaki did allow us to gaze upon her every single day of our stay, and, of course, we did indeed experience an outstanding few days.

So – here are some of the facts. Sally Hibbert and I took part in the Intermediate Paediatric Self-hypnosis Course based in New Plymouth Hospital in December 2010. The course was organized back-to-back with the annual meeting of the Paediatric Society of New Zealand, and alongside a Beginners Paediatric Self-hypnosis Course, and was led by Laurence Sugarman and Ran Anbar from Rochester and Syracuse New York respectively. The course was supported by ANZSPD who kindly assisted with funding to help bring the speakers to New Zealand through the ANZSPD grant.

For Sally and me, this course was sequel to the Beginners Paediatric Self-Hypnosis Course that we had participated in in 2006 in Nelson, taught by the same team. Katie Ayers and Richard Widmer had both also participated in the beginner's course in Nelson, and we really missed them in New Plymouth. The course began with an introduction in which both intermediate and beginners groups attended together. We were reminded about the difficulties of defining hypnosis (did hypnosis begin when the first mother "kissed it better"?), and the problems with public perception of hypnosis due to its use in the entertainment business. Self-hypnosis for children is not about "hypnotising" a child, but rather about facilitating a child to focus using their subconscious or imagination, to help them to achieve a goal. The language that we use is critically important, and we all found that there are aspects of what we do daily that already could be called 'hypnosis". Each member of the Intermediate Group had been asked to bring along video or sound footage showing examples of our use of paediatric self-hypnosis in our practice, and this formed the basis of discussions over the next few days. We also touched upon idio-motor signaling (whereupon Sally discovered it is possible to have so seriously offended your own self conscience that it won't speak to you!).

Taranaki is a stunning part of New Zealand, situated on the west coast of the North Island. The climate is warm and wet, which explains the rolling emerald hills as far as the eye can see. We had arranged to stay in a beach house (owned by the delightful and hospitable Lois) in Oakura, just a ten-minute drive south of New Plymouth. The beach house was directly across the road from a long sandy beach, and completely charmed us with its garden of cheery blue agapanthus, its friendly interior, and its happy porch (upon which we sipped happy bubbles, and nibbled strawberries every evening in the sun). We had the use of a car, which took us to and from New Plymouth each day, with mountain our right and the sea on our left on the way there, and the opposite on the return journey. Staying in a beach house was infinitely more pleasant than a hotel or motel any day. My room was at the front of the house, and each night as the agapanthus swayed in the dark, the gentle breathing of the sea on the shore "shushed" me to sleep.

Thank you to ANZSPD for helping this course to happen!

2011 Louise Brearley Messer ANZSPD Post Graduate Essay Competition Winner

Provide an overview of the importance of obtaining a 'seal' in restorative dentistry and its implications to likely success

Dr Jason Michael. The University of Sydney

Introduction

Tooth structure may be altered or irreversibly damaged through carious and non-carious processes, including abrasion, corrosion, attrition, trauma and iatrogenic damage. Wherever possible, initial management should include modification of aetiological factors and institution of appropriate prevention. In some circumstances, in addition to appropriate prevention, the lost tooth structure requires restoration to manage symptoms and to restore tooth form and function – this is the field of restorative dentistry.[1]

A 'seal' is defined as "a device or substance used to join two things together or render something impervious".[2] In restorative dentistry, a poor seal results in microleakage. Microleakage refers to "the passage of bacteria, fluids, molecules or ions between a cavity wall and restorative material applied to it".[3] Microleakage can lead to recurrent caries, marginal staining, dentine hypersensitivity, pulpal inflammation/infection/necrosis, increased rate of degradation of certain dental materials and re-infection of a root canal system.[3] Based on the potential consequences of microleakage, it is evident that a satisfactory seal is an important goal of restorative dentistry. The relationship of the restorative seal to bacteria and dental caries will be explored in detail, due to their important and common role in pulp and periapical disease.[4] This essay will focus on the importance of the seal in restorative dentistry, available materials and techniques to provide a seal and its implications to likely success.

What drives the caries process?

Dental caries is " a dietary carbohydrate-and saliva-modified bacterial infectious disease".[5] Central to our current understanding of dental caries is the ecological catastrophe concept that recognises an environmental change results in ecological pressure within the dental biofilm, causing a shift from health to disease (caries). This concept allows a comprehensive appreciation of the myriad of factors that form the multifactorial aetiology of dental caries, including salivary, tooth, biofilm, dietary, oral hygiene and social factors.

Infected versus affected dentine

Allowed to progress unchecked, dental caries with time will result in the formation of cavitated lesions. Two major structural areas of importance have been identified in a cavitated carious lesion. The outer zone is irreversibly damaged by prolonged exposure to the carious process, resulting in proteolytic breakdown of collagen that is incapable of reforming it cross-links. Dentine in this zone is known as infected dentine. Deep to the infected layer is dentine that has undergone less severe exposure to the carious process. The collagen in this area has limited damage to its cross-linking and it is thus able to be repaired after biological and operative control of the carious lesion. Minimal bacteria are presented in this inner zone, also known as affected dentine, where as the infected layer has a high microbial load.[7]

What drives dental caries in cavitated lesions?

If biofilm is central to the progression of cavitated dental caries then the most important goal of restorative dentistry is creating a surface allowing the effective disturbance of the biofilm. However, if it is the bacteria within the cavity preparation that are essential to driving the caries process then traditional techniques involving the removal of the these bacteria is essential.[8]

In active root surface caries both the cementum and then dentine become infected. However, through disturbing the biofilm and other preventive measures, root caries can be arrested without restoring the cavity.[9] Anderson (1938) demonstrated that through removing enamel overhangs, to facilitate access for biofilm disturbance, coronal carious lesions can be arrested.[10] In the two former references there is no removal of the infected dentine, thus supporting the role of placing ecological pressure on the biofilm in caries management and not the removal of infected dentine.[11] In these situations, despite the irreversible loss of tooth structure (cavitation), removal of the bacteria from the cavity is not necessary.

Restorative philosophies and the management of dental caries

An accepted time to restoratively intervene in the caries process is once a cavity has developed, from which biofilm cannot be disturbed and preventive measures have failed to create an ecological shift in the biofilm and arrest the lesion. There is controversy relating to the amount of tissue that should be removed during cavity preparation. The first factor to consider is the evidence provided in the last paragraph demonstrating the role of biofilm modification in the caries process, even when infected tissue is left in situ. Based on this, it would seem that the bacteria can be left so long as there is an ecological shift towards health. An important method of providing a change in the environment is through providing a restoration with a seal that will provide an ecological shift within the cavity. Logic suggests that a good restorative seal will provide a number of ecological changes, e.g. decreased access to substrate and increased build up of waste products, which will cause an ecological shift in the cavity's biofilm towards that of health.[12] However, some argue that the soft, infected dentine should be removed since this tooth structure cannot be repaired, to reduce majority of the bacterial burden of the cavity and to provide a sound base for the subsequent restoration.[13] Although firm, but stained dentine is likely to harbour bacteria, staining is a poor indicator of bacteria levels. Firm, non-stained dentine

has been demonstrated to also harbour bacteria in many cases.[14] If one removes firm, but stained dentine, sclerotic dentine may be inadvertently removed. The dentine tubules within sclerotic dentine are occluded with calcified tissue, thereby creating a biological seal against potentially damaging substances.[15] This biological seal should be respected and maintained to preserve the vitality of the pulp.[11]

Sealing ability of commonly used restorative materials

Although many currently available dental materials have the ability to provide an excellent coronal seal, it is essential that their indications and contraindications are understood and that they are used as per manufacturers' instructions. The ability of materials to bond to enamel and dentine of different composition also varies. Since moisture control is important in the majority of restorative procedures it should be utilised as much as possible.[16]

Glass ionomer cements (GICs)

As GIC bonds to tooth structure chemically through an ion exchange layer there should be negligible microleakage. Resin-modified glass ionomer cements (RMGICs) have the addition of 5 – 15% HEMA and light-activation catalysts. This allows RMGICs to be light cured for immediate hardening and provides immediate resistance to water uptake and limited protection against water loss. When failure of these materials occurs, it will be a cohesive failure. Therefore, a thin layer of GIC sealing the tooth will remain, affording the dentine-pulp complex some protection before the restoration is replaced.[17]

Composite resins

Although the micromechanical bond between enamel and resin provides one of the strongest bonds and best seals in modern dentistry, this is not the case for bonding to dentine. This is due to the water content and heterogeneity of dentine. For example, there is variability in the water content (e.g. in teeth with and without a pulp), mineralisation (highly mineralised peritubular dentine and less mineralised intertubular dentine) and the number of dentine tubules per unit area. Although it is possible to bond to dentine via a hybrid layer the formation of this layer is very technique sensitive and its longevity has been questioned. Polymerisation shrinkage in the order of 1.0 – 2.5% for hybrid and macrofilled composite resins, and 2.0 – 3.5% for the microfilled variety is a disadvantage of these materials. Polymerisation shrinkage can be minimised through incremental build-up and use of glass-ionomer bases to minimise subsequent composite resin thickness, but it has the potential to compromise the seal. Compomers are polyacid-modified composite resins that have similar adhesion, polymerisation shrinkage and microleakage issues as composite resins.[17] The bond strength of composite resin to caries-affected dentine is lower compared to the bond strength to sound dentine. Proposed reasons for this include the presence of acid-resistant intratubular mineral deposits impairing penetration of resin and decreased cohesive strength affected dentine.[18] Perhaps this is a natural sealing ability of dentine that should be respected? The bond strength of composite resin to hypomineralised enamel is significant lower compared with the bond strength to normal enamel.[19]

Amalgam

There is no physical or chemical bond of amalgam to tooth structure. However, the tooth-amalgam margin will seal with tin and copper-containing corrosion products with time. It may take 3 to 12 months for this seal to be complete. Post-insertion sensitivity related to the incompletely sealed margin, can be avoided by sealing the dentine tubules with glass-ionomer lining or copal varnish. The minor contraction on setting of amalgam is not thought to be clinically significant. The placement of amalgam is less technique sensitive compared with the aforementioned adhesive materials.[17]

Stainless steel crowns (SSCs)

Stainless steel crowns provide full coverage restorations and an excellent subgingival seal. Although they should be retained well through engaging bucco-lingual undercuts they are still cemented, often with glass-ionomer cements, which provide support to the crown and additional sealing. They are invaluable for restoring primary molars and as an interim restorative option for hypomineralised molars. They provide a very predictable seal.[19]

Calcium silicate-based materials

Mineral trioxide aggregate (MTA) is a calcium silicate-based material that has been developed through modification of Portland cement. Among its many useful properties is its excellent sealing ability, related to apatite crystal formation along the MTA-dentine junction and the dentine immediately located to this area, tag-like mineral projections into dentine tubules, in addition to setting expansion, which prevent microleakage and penetration of microorganisms.[20,21] The use of this material has lead to improved outcomes in a variety of endodontic and restorative procedures. For direct pulp capping, MTA results in the formation of a thicker, less permeable dentine bridge in a shorter period of time when compared with calcium hydroxide. Undoubtedly, the sealing ability of MTA contributed the 97 % success rate of direct pulp capping with this material in teeth with a carious exposure and reversible pulpitis in a 9 year observational study.[22] Numerous calcium silicate-based materials have been developed, e.g. Biodentine, with the aim of expanding their clinical use into the field of restorative dentistry as dentine replacements and interim restorations. Biodentine has the additional benefits of decreased setting time, improved clinical handling, while maintaining properties such as excellent sealing ability.[20]

Indirect materials

Useful properties of gold that enables a good marginal seal include its strength, ductility and moderate flexibility. These properties allow it to be used in thin sections with long, fine marginal bevels minimising exposure of cement to the environment and allowing the margins to be burnished practically closing the margin. Gold is often used for the definitive restoration of hypomineralised first permanent molars. Porcelain and indirect resins can be fabricated very accurately in the laboratory but due to the margin configurations required for strength and aesthetics (e.g. butt joints, heavy chamfers) there is more susceptibility to marginal leakage.[17]

Clinical studies demonstrating the significance of the restorative seal

To leave infected dentine before restoring a tooth provides the most difficult challenge to the restorative seal. Therefore, to demonstrate the importance and outcomes of obtaining a satisfactory seal, studies leaving infected dentine will be discussed.

Sealing infected dentine with extra-coronal restorations – the Hall Technique

Traditional stainless steel crown placement involves local anaesthetic, tooth preparation and caries removal.[23] The Hall Technique involves placement of a full coverage stainless steel crown, cemented with a GIC, without any tooth preparation or local anaesthetic in asymptomatic primary teeth. As such, the DEJ is not clean and soft, wet caries remains beneath the restoration. A split-mouth random controlled clinical trial of matched pairs of carious, asymptomatic primary teeth showed that after 48 months 92 % of teeth treated with the Hall Technique was successful, compared with the 52% success rate of controls that were treated with general dentists' conventional restorations, involving some degree of caries removal. Based on this research, it can be presumed that the carious destruction occurring beneath the crown either arrests or slows to an insignificant rate. This is related to the predictable and excellent sealing ability of stainless steel crowns. There are no random controlled clinical trials comparing the longevity of conventional SSCs with general dental practitioners' conventional restorations for primary teeth and no trial comparing the conventional SSC with the Hall Technique.[24] However, the success rate of the Hall Technique is comparable with conventional SSCs.[25]

Sealing infected dentine with intra-coronal restorations

A 10 year study by Mertz-Fairhurst et al.[26] compared the success of sealed composite restorations, sealed amalgam restorations and unsealed amalgam restorations. A split-mouth, randomised allocation was carried out for occlusal carious lesions with between minimal and half-way through involvement of dentine. A sealed composite restoration was compared with a sealed amalgam restoration, with no 'extension for prevention' of the amalgam and sealant being placed over the amalgam and fissure system, or an unsealed conventional amalgam restoration where 'extension for prevention' was carried out. Caries removal for both amalgam restorations involved the removal of soft, demineralised dentine and chalky, demineralised enamel. However, hard and/or stained dentine and enamel was not removed. For the sealed resin restorations the only cavity preparation that took place was an occlusally divergent 1mm wide bevel within sound, non-demineralised enamel. The DEJ was not cleaned and soft, wet dentine remained. Regarding open margins, both sealed restorations performed better than the unsealed amalgam restorations. It can be concluded that sealed composite restorations are able to arrest caries progression. The micromechanical bond of enamel to the sound enamel is able to seal the carious lesion from the bacterial substrate necessary to allow its progression.[26]

The atraumatic restorative technique involves the removal of soft, infected dentine with hand instruments only, before placement of a restoration, which also seals the adjacent fissures. Glass ionomer cements are most commonly used for these restorations due to the chemical bond to enamel and dentine. Due to the simplicity of the armamentarium and procedure there are a variety of settings where the ART approach is appropriate.[27] Frencken et al.28 demonstrated a statistically significant difference in the 6 year survival time of single-surface ART (GIC) restorations compared with conventional single-surface amalgam restorations in permanent teeth of 69% and 60% respectively. With regards to single surface restorations on deciduous teeth after three years, ART restorations performed significantly better than conventional amalgam restorations, with success rates of 86% and 80% respectively. The low incidence of secondary caries (1.5% to 2.5%) of teeth treated with the ART confirms the good seal provided by GIC.[27]

Importance of the coronal seal in the success of endodontic therapy

Since the minimisation of microorganisms within the tooth is an important goal of endodontic therapy, the removal of tooth structure that may harbour bacteria and potential avenues of microleakage (e.g. cracks, poorly sealed restorations) is advocated.[29]

The success rate of pulpotomised primary molars was higher when teeth were restored with a stainless steel crown, compared with amalgam, however this was not statistically significant.[30]

An important factor in the long term success of pulpectomy in primary molars is placement of a permanent restoration (e.g. stainless steel crown). The success rate of such teeth restored with temporary materials was only 28.6% in a study with a mean follow-up of 21 months.[31]

Double seal techniques are recommended to ensure a good seal for temporary access cavity restorations. Although Cavit can prevent fluid passage when unloaded, this is not the case when loaded. Cavit has not been shown to prevent bacterial penetration, like a reinforced zinc-oxide eugenol material (e.g IRM) can. Although IRM is strong and wear resistant it does allow fluid penetration.[32] Jensen et al. (2007) advocate the use of a double seal technique using an inner layer of Cavit and outer layer of IRM that employs the advantages of both and compensates for their disadvantages. GIC can also be utilised as an outer layer in this technique.

The final stage of root canal treatment (obturation) aims to fill and seal the root canal system apically, laterally and coronally to maintain the disinfected condition of the root canal system.[33]

The coronal seal has been supported as an important determinant in long term success of root canal treatment.[34] The coronal seal may be compromised via microleakage, gross breakdown, fracture or loss of the temporary or permanent restorative material, fracture of tooth structure, recurrent caries or delay in definitive restoration. If the coronal seal is breached the root canal filling will come into contact with oral microorganisms, their products and their substrate via whole saliva.[33] In these circumstances, periapical disease may result from microorganisms, their products and other substances within whole saliva, resulting in failure of the root canal treatment.[35] Following vertical or lateral condensation techniques the entire length of root canals have been shown to be contaminated with bacteria after an average of 30 days.[36] Due to the water soluble nature of temporary cements as a component of interim restorations for teeth being treated with an indirect post-core, one should consider direct options wherever possible. Radiographic assessment of the coronal restorations in two studies determined that the state of the coronal seal had significantly greater importance compared with standard of the root filling[37,38] However, other authors emphasise the importance of both root filling and coronal seal quality in success.[38,39] This research suggests that

root filled teeth should be definitively restored soon after obturation to avoid complications of a compromised coronal seal. Bonded restorations are preferred to minimise microleakage. Where immediate restoration is not possible, a bonded layer should be place over the orifices of the root fillings and floor of the pulp chamber. Where possible, direct post systems should be used, as temporisation using posts and temporary cements has been shown to allow just as much microleakage as a non-restored, root canal treated tooth.40 When an indirect post cannot be avoided, it is important to place a barrier to avoid contamination during temporisation.[41]

Conclusion

Tooth structure can be lost through a variety of processes. There are a number of materials and techniques by which lost tooth structure can be restored. Although there are many factors to consider when choosing a restorative material and technique, an important consideration is the ability to obtain a satisfactory seal to avoid the consequences of microleakage and to maximise longevity.

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Hello Tim,

When I was in Uluru, I spoke to a few people from other states about Bruce's scrap with the crocodile and they were unaware of the incident. I have scanned the attached article from The West, 31st May 2011, but unfortunately, it wouldn't quite all fit on our scanner. Hence the headline: "Croc sinks teeth into dentist" [groan!] missed out. I mentioned it to Kareen and he suggested it might be of interest to others. It does lend itself to other lines that might be applicable to ANZSPD members [which Bruce is], such as "A croc? Nothing compared to a 4 y.o. boy with ADHD requiring dental treatment" etc.

Cheers, Alistair

GARY ADSHEAD

Broome dentist Bruce Rudeforth has survived an attack from a 2.5m saltwater crocodile which leapt into his dinghy and clamped its jaws around his upper chest during a fishing trip with friends.

The experienced 59-year-old Kimberley coast fisherman was baiting up on Wednesday afternoon for barramundi in Secure Bay — about 270km from Derby — when the crocodile launched itself at him.

"Out of the corner of my eye, this thing came at me," Dr Rudeforth said.

"It bit into my shoulder and I stood up and gave it one in the throat with my free elbow.

"I presume that's what made it let go."

The crocodile slid down and was teetering on the dinghy's gunwale for several seconds.

"It was a bit touch-and-go as to whether it went back into the water or came into the dinghy with us," he said.

"Things were a bit tense."

Dr Rudeforth was bleeding under his shredded shirt but the close encounter was not over.

The crocodile disappeared underwater but returned, forcing the dentist and his fishing mate Neil Fong to strike the reptile with an oar.

"With the other hand I had the outboard started and we were going backwards at a million miles an hour," Dr Rudeforth said.

When the pair made it back to a bigger boat, where their three fishing colleagues were, Dr Rudeforth was treated by his brother-in-law and fellow Broome dentist Peter Ellies.

Dr Ellies used a local anaesthetic from the boat's first-aid kit to numb the pain and stitch the wounds.

"I had puncture wounds and some tearing from the crocodile's teeth," Dr Rudeforth said.

Rather than call off the week-long trip, Dr Rudeforth decided to continue fishing with stitches in the wounds for several days.

"It takes a lot to organise a trip like that, so why come home," he said.

The experience had not put him off returning to the fishing spot but he wanted to warn others that the behaviour of the crocodiles in the area appeared to have changed inexplicably.

Not long before the attack, he and Mr Fong had caught two barramundi and lost two others while fishing along the side of a creek.

"There was no warning whatsoever," Dr Rudeforth said.

"We have been doing this for years and years and there are always crocodiles around.

"They usually hang out at a comfortable distance, just waiting for you to make a mistake, but on this trip we had lots of episodes where they came right at us and were aggressive."

He had one theory that as more and more people ventured into the area, they might be feeding the crocodiles in some way.

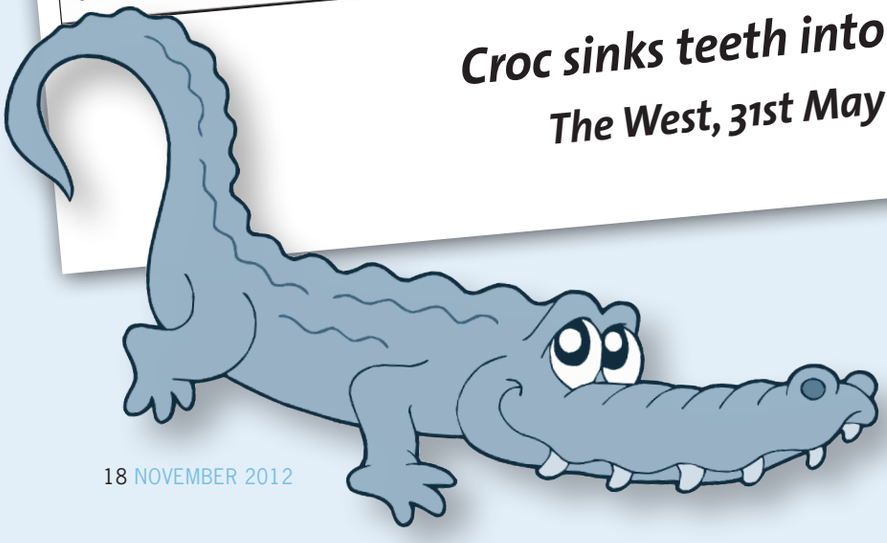
"And that is causing them to associate humans with food," he said. "If that's the case, then there will be more and more of this sort of stuff happening."

In good hands: Bruce Rudeforth has the crocodile bite stitched up by his brother-in-law and fellow dentist Peter Ellies.

Painful extraction: Dr Rudeforth fought off the crocodile that bit him.

Croc sinks teeth into dentist

The West, 31st May 2011



Changes to the recommended use of paracetamol

PJW Verco, Paediatric Dentist

It is easy in an adult hospital to prescribe a standard adult dose of paracetamol 1gm qid and to annotate it iv or oral.

Have a look at the links below and see the disastrous outcomes if the adult is very small.

The dose for paracetamol by intravenous infusion over 15 minutes ADULT and CHILD over 50 kg, 1g every 4-6 hours, max 4g daily; ADULT and child 10-50 kg, 15mg/kg every 4-6 hours, max 60mg/kg daily.

In Australia, the TGA is, at present, sticking to the recommended paracetamol dosing for adults and children 12 years and over is 500 to 1000 mg every four to six hours as necessary, with a maximum of 4000 mg in any 24 hour period.

However there have been recent changes to the recommended use of paracetamol in the USA and UK are as follows:

- ***On 28 July 2011***, McNeil Consumer Healthcare announced their decision to reduce the maximum recommended adult dosing on their paracetamol 500 mg Tylenol products, from 4000 mg to 3000mg per day. (www.jnj.com/connect/news/all/mcneil-consumer-healthcare-announces-plans-for-new-dosing-instructions-for-tylenol-products). This change was instigated by McNeil, not the USA Food and Drug Administration.
- ***On 6 June 2011***, the Medicines and Healthcare products Regulatory Agency (MHRA) in the UK announced that the paracetamol dosage instructions for children are to be changed in the UK (www.mhra.gov.uk/NewsCentre/Pressreleases/CON120251) by the end of 2011. The new UK dosing has a larger number of narrower age bands and defines a single dose per age band. For example, the current UK dosage system has a single age band of 6-12 years, whereas the new UK dosage system has three separate age bands: 6-8 years, 8-10 years and 10-12 years.

http://www.tga.gov.au/consumers/information-paracetamol-doses.htm

http://www.scotland-judiciary.org.uk/10/715/Fatal-Accident-Inquiry-into-the-death-of-Danielle-Welsh

http://www.dailyrecord.co.uk/news/scottish-news/2011/02/05/grieving-dad-plans-court-action-after-paracetamol-overdose-leads-to-daughter-s-death-86908-22900524/

Figure 1.
The Rotary team arrive at Tan Hiep District Hospital

Figure 2.
Working with the Vietnamese dentist, Dr. Hieu

Figure 3.
Children cleaning their teeth at a local school

Rotary Australia Vietnam Dental Health Project 2011

A personal reflection

Tri Nguyen

As a 5 year old coming to Australia from Vietnam with early childhood decay, and now a final year dental student without a filling in my mouth, I am aware of the positive impact that good oral health can have. It was this appreciation and an interest in learning about working with developing countries that lead me to become involved in the Rotary Australia Vietnam Dental Health Project. Although I had researched the project extensively, I still did not have a comfortable grasp of what to expect. Leading up to the trip, I was filled with a mixture of excitement and trepidation. As I boarded the plane, it felt like the following two weeks would be like jumping off one.

The team's first destination was Tan Hiep, a small but bustling village located in the Mekong Delta Region. One long straight road ran through the town and the population settled outwards from this central artery. Because of its remote location, Tan Hiep had not been host to many foreigners, in fact, Rotary were the first international group to visit. Our team consisted of Dr. Chris Callahan, Dr. Gary To, dental nurses Jill Roberts, Jillian Sand, Danni Hodge, and myself.

Figure 1. The Rotary team arrive at Tan Hiep District Hospital.

When we arrived at the local hospital, the first thing we did was set up equipment and supplies. I was amazed by the efficiency with

which we converted bags of "stuff" into well organised areas of instruments, materials and gifts for the kids.

Facilities at the hospital were basic and sometimes broke down, through this, I was introduced to components of the dental chair that I did not even know existed. Once everything was up and running, the team was like a well oiled machine. We worked from 7am til as late as 6pm on some days and treated around 40 children per day, doing mostly fillings and fissure sealants. The work rate was both tiring and exhilarating at the same time. I rotated around the tasks of registering the kids, dental assisting and supervised clinical work.

Most kids presented with widespread caries and molars that looked like they had bombs dropped on them. Despite the pain they would have been in, it did not seem to affect their mood or ability to be kids. They would peer around the corner while their classmates were being treated and cheerfully debate what procedure was being done, with each rebuttal describing a more gruesome act. As patients, the children were cooperative and stoic. In contrast to the Australian paediatric patient, they required little or no behaviour management. When they were in pain, most did not interrupt the procedure or make a sound. And so, we often used the curling of their toes as a sign that a rest was needed. On occasion, with less cooperative children, the skills of the local dentists were required. It was interesting to observe the culturally and socially-specific strategies that they used. An upset child was consoled with the sentiment that "boys who cry are laughed at, only girls cry". This may seem a little insensitive and perhaps sexist, however, with my understanding of the language and context, it

Figure 4. Conducting a dental examination on a pre-school child for the research project

Figure 5. The team (left to right): Danni Hodge, Dr. Gary To, Jillian Sand, Jill Roberts, Tri Nguyen, Dr. Chris Callahan

was perfectly fine. Children who refused treatment were told about how much fillings cost and their parent's inability to pay for them. This was relevant as Tan Hiep was not a socio-economically advantaged area.

The children were triaged before providing any treatment, teeth were categorised as needing a filling, fissure sealant or extraction. Only a few necessary extractions were done as the local dentist advised that there was no charge to students for extractions and that she could do them later.

The restorations were carried out by removing weakened enamel and carious infected dentine towards the surface of the lesion, while leaving decay towards the pulp to avoid exposure. The cavities were restored with Fuji IX and protected by smearing coco butter on the surface, which often helped to contour the filling. There were a few students who were seeing the Rotary field team for the second time as they had to repeat a year of school. This was a great opportunity for us to gauge the survival of these fillings that we were putting in. To our delight, the fillings were still in place and allowing the tooth to be functional.

Figure 2. Working with the Vietnamese dentist, Dr. Hieu

I got to venture out of the hospital into the community on several occasions. I accompanied Dr. Jamie Robertson to the local school where a tooth brushing program had been implemented. Upon arrival, we were greeted by groups of children hunched over a long basin brushing their teeth. They greeted us with little smiles formed under the toothpaste foam that covered their mouths. The principal was welcoming and seemed very dedicated to improving the oral health of his students. He spoke with enthusiasm about plans to build a space-efficient and hygienic cabinet to store his students' toothbrushes.

Figure 3. Children cleaning their teeth at a local school.

I also carried out a research project looking at the milk consumption of preschool children and their high caries experience. This gave me the opportunity to visit kindergartens to do dental examinations and conduct surveys. In order to get a feel for the milk varieties, sugary foods and oral hygiene products available to the community, I went to local shops and markets. There, I asked the shopkeepers about popular products, to which they reported that most children drank sweetened milk from a carton and that milk with no sugar was a poor seller.

Figure 4. Conducting a dental examination on a pre-school child for the research project

There was an overall sense of appreciation for the work we were doing, which was evident from the children right up to the local officials. One child, who missed the school bus, rode for 30min in the scorching sun to get treatment. As for the villagers, when I went to the local photo shop to develop a picture of the team as a parting gift for our chef, the service was provided free of charge. The shop keeper explained that he believed we were doing a good thing for the community and he wanted to make a small contribution. We farewelled the village with a dinner hosted by the director of the hospital, and the highest-ranking local politician, similar to what we know as a mayor. They thanked us for our work and gave us a gift as a token of their appreciation.

There was a dental conference held at the National Hospital of Odontostomatology, where several of the Rotary specialists were speakers. Other presenters came from Canada, USA, South Korea and of course Vietnam. I got to see some interesting clinical techniques, while soaking up the Vietnamese flavour of the event. Unlike other conferences, this one had live musical performances and speakers were presented with bouquets of gratitude before, during and after the event.

Through being a part of the Rotary Australia Vietnam Dental Health Project, I was able to observe as well as participate in the multi-pronged activities necessary to assist in improving the oral health of a community. From the knowledge exchange with professionals at the conference, to the school toothbrushing program and the provision of dental treatment at the hospital, I am optimistic about the prevention of blown up molars in the future. I would like to thank Dr. Jamie Robertson for giving me the opportunity to have this wonderful experience, and GC Corporation for providing me with a generous grant. Lastly, thank you to my team members for the mentorship and good times.

Figure 5. The team (left to right): Danni Hodge, Dr. Gary To, Jillian Sand, Jill Roberts, Tri Nguyen, Dr. Chris Callahan

ANNOUNCEMENT

The International Association of Paediatric Dentistry

PRESENTS

AWARD

AWARD

GOALS & CRITERIA

Community oral health education programs involving dental professionals, primary school educators and parents, working together, to help children develop and maintain sound oral health habits is a goal of the International Association of Paediatric Dentistry (IAPD).

The IAPD is pleased to announce an award program to recognize community oral health education programs designed to improve the oral health habits of children. The purpose of this award is to stimulate the development of innovative programs worldwide and to facilitate information sharing and transfer. This program is generously supported by The Colgate-Palmolive Company.

IAPD awards prizes at the biennial IAPD Congress. The Bright Smiles, Bright Futures Award will be given for the best community oral education program submitted. All programs that the Award Committee considers fulfill the eligibility conditions will receive an IAPD Certificate of Recognition, and be given the opportunity to present at the next Congress. The best program selected by the judges will receive an award of $2000 USD from June 12-15, 2013 in Seoul, Korea, where this award will be presented.

ELIGIBILITY

- Any individual or organization responsible for creating or implementing a preventive oral health community program serving children may apply.
- Programs may be in any academic, clinical or community-based setting, such as a school, health or community center serving children. Attention to daily motivation activities is encouraged.
- Existing programs and newly-created ones that have objectives and measurable goals will be considered.
- Programs will be judged on impact, educational materials and presentation.

  IMPACT: How well the children are being motivated and/or educated
  MATERIALS: How innovative the materials are, how clearly they tell a story, and how well they enable educators and parents to work together.
  PRESENTATION: How well the concepts are displayed and can be transferred, based on the presentation of the program design and details.

- To be eligible, programs should be underway by March of 2012 in order to demonstrate results in 2013.

APPLICATION

- Applications should be received by January 1, 2013 for consideration by the Judges. Applicants unable to complete their submissions by that date should contact the IAPD Secretariat for an extension.
- A 100 word abstract and a three page description of the program should be included with the completed application. Supporting educational materials used in the program may be requested by the judges. (Entry materials cannot be returned.)
- Judging will be conducted by the IAPD Award Committee, made up of representatives of the International Association of Paediatric Dentistry, and a representative of Colgate-Palmolive.

FOR ENTRY APPLICATIONS PLEASE CONTACT SYLVIE DUTILLOY WITH IAPD

The International Association of Paediatric Dentistry, established in 1969, now represents over 10,000 dentists worldwide. IAPD's goal is to contribute to the progress and promotion of dental health for children and to encourage research and programs in this field. IAPD meetings and the International Journal of Paediatric Dentistry act as forums for the exchange and transfer of international information concerning paediatric dentistry.

All dentally qualified applicants for this award are encouraged to become members of IAPD. Forward completed applications to:

Sylvie Dutilloy
IAPD
c/o FDI World Dental Federation
iapd@fdiworldental.org

Colgate Corner

by Sue Cartwright, BDS, Dip Clin Dent, M Ed

Focus on CPD

Here are two online courses featured on the Colgate Oral Health Network. There are 20 one hour courses available on a wide variety of dental and oral health topics. Just register at www.colgateprofessional.com.au and choose the courses that appeal to you the most. All courses are free of charge.

Eating Disorders: Medical and Dental Considerations

Dr. Barbara J. Steinberg, DDS, Clinical Professor of Surgery

Eating disorders have become a problem that is epidemic on our college campuses with possible life threatening implications. This presentation will address the psychological, medical and dental issues associated with these disorders. Dental management considerations of the eating disordered patient will also be discussed.

Common Oral Complications of Medication Use

Ann Eshenaur Spolarich, RDH, PhD

The purpose of this course is to provide oral health professionals with information regarding the assessment of oral complications of medication use. Adverse medication effects on oral hard and soft tissues will be reviewed. Detailed descriptions of drug classes associated with each effect will be provided. Management strategies for improving oral health in medicated patients will be discussed.

Learning objectives:

- Discuss the aetiologies of medication-induced xerostomia.
- Identify prescription drugs that increase risk for xerostomia and related oral sequelae.
- Describe appropriate interventions for patients experiencing drug-induced xerostomia to reduce oral disease risks.
- Describe drug classes known to alter taste.
- Discuss medication-induced oral soft tissue alterations, including mucositis, aphthous stomatitis, lichenoid drug reaction, and gingival hyperplasia.
- Describe medications associated with causing extrapyramidal effects that alter oral muscular function resulting in hard tissue damage.

Up Coming *Events*

3 April – 7 April 2013
35th Australian Dental Congress
Melbourne Convention and exhibition Centre
Melbourne, Victoria. Australia
adc2013@ada.org.au_
www.facebook.com/adacongress
www.youtube.com/adacongress

19 April 2013
8th EAPD Interim Seminar and Workshop
Cyprus
webmaster@eapd.eu
www.eapd.gr

24 – 27 May 2013
66th AAPD Annual Session
Walt Disney World Swan and Dolphin Resort.
Orlando, Florida. USA
www.aapd.org

12 – 15 June 2013
IAPD International Congress
'New Visions for Paediatric Dentirty'
Coex, Seol, Korea
www.iapdworld.org

22 – 25 May 2014
67th AAPD Annual Session
Hynes Convention Centre/Sheraton Boston Hotel HQ
Boston. Mass. USA
www.aapd.org

28 May – 1 June 2014
12th EAPD Congress
Sopot, Poland
webmaster@eapd.eu
www.eapd.gr

1 July – 4 July 2015
25th IAPD International Congress
Glasgow Scotland UK
www.iapdworld.org

Singapore 2014!
9th Biennial Conference of the Pediatric Dentistry Association of Asia (PDAA),
ww.pdaa.asia/pdaa-singapore-2014/

Australia and New Zeaand Society of Paediatric Dentistry
www.anzspd.org.au

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